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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/785,399 | 02/25/2004 | Tonu Trump | 4147-65 | 9801 |
| 23117 | 7590 | 10/19/2005 | EXAMINER | |
| NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203 | | | BRINEY III, WALTER F | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2646 | |

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|----------------------------------|------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/785,399 | TRUMP ET AL. | |
| | Examiner Walter F. Briney III | Art Unit 2646 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 August 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-10 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 25 February 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 8/23/04.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1, 5, 6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Barron et al. (US Patent 5,357,567).**

Claim 1 is limited to a *method of enhancing audibility of a far-end signal from a far-end user to a near-end user in a telephone system*. Barron discloses a method and apparatus for volume switched gain control. See Abstract. The apparatus is depicted in figure 4 and includes a far-end amplifier (425) that enhances audibility of the far-end signal using a gain value determined in accordance with the methods of figures 5, 6, 8 and 9. In particular, figure 9 depicts the calculations (915) used in determining the receive gain (i.e. far-end gain) GRN. GRN is a function of X_T , which is determined in accordance with block (835) of figure 8. Specifically, X_T is a function of E_T and N_T , the peak transmitted speech and smallest transmitted noise magnitude respectively. With respect to the claim limitations, determining GRN based on X_T , a function of E_T and N_T , corresponds to *determining a gain as a function varying in both in an estimated near-end background noise signal level and a n estimated near-end speech signal level*. Setting amplifier (425) with the gain value GRN by line (423) and thereby amplifying the

signal on input (167) corresponds to *applying said gain to said far-end speech signal.* Therefore, Barron anticipates all limitations of the claim.

Claim 5 is limited to *the method of claim 1*, as covered by Barron. As seen in step (915) of figure 9 of Barron, the gain applied to the receive amplifier (425) is limited by a scaling factor S, such that the gain is smoothly switched from the previous value. This corresponds to low pass filtering said determined gain before application to said far-end speech signal. Therefore, Barron anticipates all limitations of the claim.

Claims 6 and 10 recite essentially the same subject matter as claims 1 and 5, as covered by Barron, and are rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 2-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barron et al. (US Patent 5,357,567) in view of Li (US Patent 5,612,996).**

Claim 4 is limited to *the method of claim 1*, as covered by Barron. Barron teaches adjusting the gain of both a receive amplifier (425) and a transmit amplifier (415) in accordance with the methods of figures 5, 6, 8 and 9. However, the invention disclosed by Barron includes neither echo cancellers nor gain limiters. Therefore, Barron anticipates all limitations of the claim with the exception of *determining first and*

second thresholds and limiting said gain to values below the smallest of said first and second thresholds.

Li teaches a loop gain processing system for speakerphone applications. See Abstract. In general the loop gain processing system of Li allows for higher gain within a full-duplex speakerphone without instability. These benefits are achieved, in part, through the addition of back-to-back echo cancellers AEC and LEC. See the section entitled Background of the Invention beginning in column 1 for a brief on the use of echo cancellers within speakerphone systems, such as that disclosed by Barron, to increase performance. As seen in figures 2(a) and 2(b), the loop gain processing system includes, in addition to the echo cancellers (224) and (250), transmit (228) and receive AGC units (254) as well as a user-adjustable receiver volume controller (258). The AGC units correspond to the amps (415) and (425) identified within the disclosure of Barron. In addition to the above noted amplifiers, Li provides transmit (232) and receiver gain adjusters (232) and (256). These gain adjusters allow dynamic half-loop gain control based on the current ERL of the echo cancellers and the total gain provided by the AGC units (i.e. amps 415 and 425 of Barron). See column 4, lines 34-49. In operation, two thresholds are calculated, LIMIT and RXLOOP. LIMIT is equal to the difference between a user set maximum volume and the current receive signal level. See column 8, lines 62-65. RXLOOP is the minimum attenuation necessary to maintain stability and is a function of LEC_{gain} , the echo return loss of the LEC. See column 7, lines 45-63, and column 8, lines 12-15. These variables then limit the gain applied to the receive channel.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify a speakerphone to include acoustic and line echo cancellers as taught by Li for the purpose of providing full-duplex substantial acoustic and line echo removal. In addition, it would have been obvious to provide the half-loop gain adjustment means as taught by Li for providing a maximum signal level that takes into account all sources of gain and attenuation while avoiding over-attenuation of an input signal.

Claim 2 is limited to *the method of claim 1*, as covered by Barron. This claim recites essentially the same subject matter as claim 4, as covered by Barron, and is rejected for the same reasons.

Claim 3 is limited to *the method of claim 1*, as covered by Barron. This claim recites essentially the same subject matter as claim 4, as covered by Barron, and is rejected for the same reasons.

Claims 7-9 recite essentially the same subject matter as claims 2-4, as covered by Barron in view of Li, and are rejected for the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB
10/17/05


SINH TRAN
SUPERVISORY PATENT EXAMINER